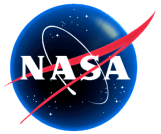
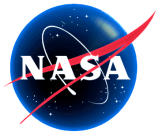


L T M
LACE Task Manager

John E. Dorband

NASA - GSFC



Description

- LTM is a simple one queue task scheduler for Linux clusters
- It is written in Python
- It supports both batch and interactive jobs

How to run a simple job.

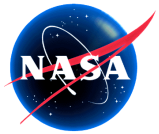
Example #1

ltmbegin –n64

<bash script>

ltmend

* This default to 10 minutes.



Example #2

<compile my_mpi_program>

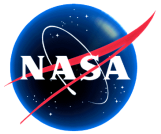
ltmbegin –n64 –m30

ltmpi my_mpi_program

ltmend

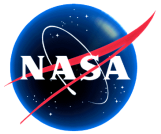
Batch Job

- Create <batch script> including ltmbegin and ltmend commands.
- Run: ltmbatch <batch script>
- This allows the user to logout leaving the batch running in background



Other Runtime Commands

- ltmcp – Copy a file to every node in users job node list.
- ltmsh – Run a command on every node in users job node list.
- ltmload – display the load statistics of a job.
- ltmnodes – list the nodes in a job's node list.



Example #3

<compile my_mpi_program>

ltmbegin –n64 –m30

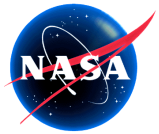
ltmcp my_mpi_program .

ltmsh ls -l

ltmpi my_mpi_program

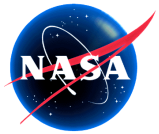
ltmload

ltmend



Management Commands

- ltmsuper – starts users interface to queuing system
- ltmstate – shows the policy and state of the queue
- ltmreport – shows the number of node*hours a user has used this month
- ltmterminate – shutdown user interface started by ltmsuper
- ltmkill – kill a job by task ID(found in ltmstate listing).

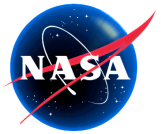


ltmstate

```
[dorband@thunder1 dorband]# ltmstate

            LACE Task Manager

    Nodes:      unused=238   good=238   failed=0
    Priority:    least time,     least nodes,
    Limits:      Max nodes = 128     Max time  = 60m
    Idle tasks will be killed after 4 minutes.

    Queues:
        user      session  TID  priority  nodes  time(min)

    Deferred tasks=0:

    Waiting tasks=0:

    Running tasks=0:

    Shutdown tasks=0:
```

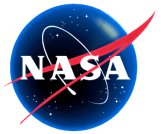
Queue Policy

- Weekdays 8:00am to 8:00pm
  - Limits: 128 nodes / 60 minutes
  - Priority: short/small jobs
- Weeknights 8:00pm to 8:00am
  - Limits: all nodes / 360 minutes
  - Priority: large/short jobs
- Weekends 8:00pm Friday to 8:00am Monday
  - Limits: all nodes / 720 minutes
  - Priority: large/short jobs



ltmreport

```
[root@thunder1 root]# ltmreport

          user      node*hr  usage

          olson       988.73  82.31%
        ggardner        13.59  19.46%
         koppitz         6.07   0.21%
          tester         3.26   2.46%
        vanmeter        34.42   9.59%
          johnrb        60.92   0.19%
        imbiriba      2208.16  91.37%
           szhou         0.30   0.07%
          mrilee         0.17   0.22%
        mbuenfil         0.20   0.19%

           TOTAL      3315.82  85.58%
```



Management Commands (root)

- ltmadd – add nodes to system
- ltmdel – delete nodes from system
- ltmsched – start scheduler
- ltmmanage – restart scheduler